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EXAMINER
RASHID, DAVID

ART UNIT	PAPER NUMBER
2624	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

	Application No.	Applicant(s)
Office Action Summary	10/529,316	AZUMA ET AL.
	Examiner	Art Unit	
	DAVID P. RASHID	2624	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS,
WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>22 June 2009</u>.
2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1 and 4-22</u> is/are pending in the application.
    4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☒ Claim(s) <u>1,4-9 and 17-22</u> is/are allowed.
6)☒ Claim(s) <u>10-16</u> is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a)☐ All b)☐ Some * c)☐ None of:
    1.☐ Certified copies of the priority documents have been received.
    2.☐ Certified copies of the priority documents have been received in Application No. _____.
    3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
        application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.
5)☐ Notice of Informal Patent Application
6)☐ Other: _____.

DETAILED ACTION

Table of Contents

Continued Examination Under 37 C.F.R. § 1.114

[1]   A request for continued examination under 37 C.F.R. § 1.114, including the fee set forth
in 37 C.F.R. § 1.17(e), was filed in this application after final rejection. Since this application is
eligible for continued examination under 37 C.F.R. § 1.114, and the fee set forth in 37 C.F.R. §
1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn
pursuant to 37 C.F.R. § 1.114. Applicant's submission filed on Jun. 22, 2009 has been entered.

Amendments & Claim Status

[2]   This office action is responsive to <u>Amendment in Response to Final Office Action</u>
(hereinafter "Amendment") received May 22, 2009. Claims 1 and 4-22 remain pending; claims
2-3 cancelled.

Response to Arguments

<u>Remarks Moot regarding Rejections Under 35 U.S.C. § 102</u>

[3]   <u>Amendment</u> at 10 regarding 35 U.S.C. § 102 rejections with respect to claims 10-14 and
16 have been respectfully and fully considered, but are considered moot in view of the new
grounds of rejection.

Remarks Moot regarding Rejections Under 35 U.S.C. § 103

[4]   Amendment at 11 regarding 35 U.S.C. § 103 rejections with respect to claim 15 have been respectfully and fully considered, but are considered moot in view of the new grounds of rejection.

Claim Rejections - 35 U.S.C. § 103

[5]   The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Daugman in view Flom et al.

[6]   **Claims 10-14** are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,291,560 (issued Mar. 1, 1994, hereinafter "Daugman") in view of U.S. Patent No. 4,641,349 (issued Feb. 3, 1987, hereinafter "Flom").

Regarding **claim 10**, while Daugman discloses a counterfeit eye discrimination method (fig. 1) comprising the steps of:

capturing a single image (fig. 2) from a living eye (". . .a living iris" at 6:53-58) or a photocopy (". . .a photograph" at 6:53-58; e.g., fig. 2) of a living eye;

receiving image data of the single image (fig. 1, item 10; e.g., fig. 2) and storing the image data on a memory device (a memory device must exist for the single image to be received and thus stored);

performing band limitation ("quadrature bandpass filters" in 3:52-55; fig. 3; fig. 4) to the whole image data (the qaudrature bandpass filters are applied to the whole image) of the single image (fig. 1, item 10; e.g., fig. 2);

extracting a predetermined feature (fig. 4c to generate the code when fig. 4b Gabor filter above or below 0 creating the Hamming distance) from the band-limited image data; and

recognizing whether the single image (fig. 1, item 10; e.g., fig. 2) has been captured from a photocopy of a living eye based on data of the extracted feature (fig. 6 displays the difference

in hamming distance between an authentic iris and a photocopy of an iris), Daugman does not disclose wherein the predetermined feature being one of or a combination of two ore more of moment, central moment, skewness, and kurtosis of pixel values.

Flom teaches an iris recognition system (fig. 3) that includes a predetermined feature being one of or a combination of two ore more of moment, central moment (13:33-40), skewness, and kurtosis of pixel values.

It would have been obvious to one of ordinary skill in the art at the time the invention was made for the predetermined feature of Daugman to include one of or a combination of two or more moment, central moment, skewness, and kurtosis of pixel values as taught by Flom teaches to "provide[[s]] an identification technique based upon the recognition of the unique features of the iris and pupil, referred to herein as 'iris identification'." Flom at 1:46-48.

Regarding **claim 11**, Daugman discloses the counterfeit eye discrimination method of claim 10,

wherein in the recognition step,

distributions (fig. 10; fig. 6) of the predetermined feature of images from a living eye ("Authentics" in fig. 6) and images captured from a photocopy of a living eye ("Imposters" in fig. 6) are respectively prepared beforehand,

a distance to data of the extracted feature (fig. 4C to generate the code when fig. 4B Gabor filter above or below 0 creating the Hamming distance) from the feature distribution of the images captured from a living eye and a distance thereto from the feature distribution of the images captured from a photocopy of a living eye are calculated (all of the necessary distances calculations in fig. 6), and

the single image is judged to have an eye belonging to the distribution (fig. 6 with the cross-hatched rate areas), from which the calculated distance is the shorter between a living eye and a photocopy of a living eye (e.g. a Hamming distance of 0.2 is a shorter distance to a probable authentic image, the longer distance would be to an imposter image).

Regarding **claim 12**, claim 10 recites identical features as in claim 12. Thus, references/arguments equivalent to those presented above for claim 10 are equally applicable to claim 12.

Regarding **claim 13**, claim 10 recites identical features as in claim 13. Thus, references/arguments equivalent to those presented above for claim 10 are equally applicable to claim 13.

Regarding **claim 14**, <u>Daugman</u> discloses an iris authentication method (fig. 1) comprising the steps of:

performing iris authentication (fig. 1; fig. 1, item 28) based on image data of a photocopy image ("FIG. 2 is a photograph of a human eye" at 3:50-51; fig. 1, item 10) including an eye (fig. 2); and

performing the counterfeit eye discrimination method of claim 1 or claim 10 to the image data when a subject is authenticated as a person himself or herself ("confirming personal identity" in 4:27-29; 13:26-41) in the iris authentication step.

Min et al. in view of Flom et al. and Jones et al.

[7]   **Claim 15** is rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,760,467 (filed Mar. 21, 2000, hereinafter "Min et al.") in view of <u>Flom</u> and U.S. Pub. No. 2002/0107801 (published Aug. 8, 2002, hereinafter "Jones et al.").

Regarding **claim 15**, while <u>Min et al.</u> discloses a counterfeit printed matter discrimination method (fig. 3), characterized by comprising the steps of:

capturing (fig. 1, item 2) a single image (fig. 2) from an iris;

receiving image data of the single image (fig. 2) and storing the image data on a memory device (fig. 1, item 3); and

detecting presence or absence of static textual roughness (fig. 2 absent items LED-L' and LED_R' is the presence of static textual roughness) in the single image (fig. 2) by image processing (fig. 1, item 3; fig. 3, item S7) to the image data; and

wherein the iris is judged to be a counterfeit printed matter (6:58-61 wherein a photograph would be "counterfeit printed matter") when roughness is detected in the image, <u>Min et al.</u> does not teach (i) wherein the image processing includes a step of extracting one of or a combination of two ore more of moment, central moment, skewness, and kurtosis of pixel values as a predetermined value; and (ii) wherein the image is of a bill or valuable paper.

Flom teaches an iris recognition system (fig. 3) that includes a step of extracting one of or a combination of two or more moment, central moment (13:33-40), skewness, and kurtosis of pixel values as a predetermined value.

It would have been obvious to one of ordinary skill in the art at the time the invention was made for the image processing of Min et al. to include a step of extracting one of or a combination of two or more moment, central moment, skewness, and kurtosis of pixel values as a predetermined feature as taught by Flom teaches to "provide[[s]] an identification technique based upon the recognition of the unique features of the iris and pupil, referred to herein as 'iris identification'." Flom at 1:46-48.

Jones et al. teaches an automated document processing system using full image scanning that includes wherein the image is of a bill or valuable paper (fig. 4C)

It would have been obvious to one of ordinary skill in the art at the time the invention was made for the image of Min et al. in view of Flom to include a bill or valuable paper as taught by Jones et al. "to provide a document and currency processing system capable of processing documents utilizing full image scanning and a currency discriminator." Jones et al. at paragraph [0003].

Min et al. in view of Flom et al.

[8]   **Claim 16** is rejected under 35 U.S.C. § 103(a) as being unpatentable over Min et al. in view of Flom.

Regarding **claim 16**, while Min et al. discloses an image discrimination method (fig. 3) comprising the steps of:

capturing a single image from a an object (fig. 1, item 1) or a printed matter imitating the object ("[h]owever, in the case that a photograph is taken. . ." at 3:41-44);

receiving image data of the single image (fig. 2) and storing the image data on a memory device (fig. 1, item 3); and

detecting presence or absence of static textual roughness (fig. 2 absent items LED-L' and LED_R' is the presence of static textual roughness) in the single image (fig. 2) by image processing (fig. 1, item 3; fig. 3, item S7) to the image data; and

wherein the single image (fig. 2) is judged to have been captured from a printed matter imitating the object ("[h]owever, in the case that a photograph is taken. . ." at 3:41-44) when the static textual roughness (fig. 2 absent items LED-L' and LED_R' is the presence of static textual roughness) is detected in the image, <u>Min et al.</u> does not teach wherein the image processing includes a step of extracting one of or a combination of two ore more of moment, central moment, skewness, and kurtosis of pixel values as a predetermined value.

Presence of items LED-L' and LED_R' at fig. 2 in the single image is composed of less static textual roughness (those pixel values of the pupils reflecting light from items LED_L and LED_R at fig. 1 would most consistent, and less volatile – e.g., all pixels values being white at items LED-L' and LED_R') in those specific areas than if they didn't exist in a photograph put in front of item 2 at fig. 1.

<u>Flom</u> teaches an iris recognition system (fig. 3) that includes a step of extracting one of or a combination of two ore more of moment, central moment (13:33-40), skewness, and kurtosis of pixel values as a predetermined value.

It would have been obvious to one of ordinary skill in the art at the time the invention was made for the image processing of <u>Min et al.</u> to include a step of extracting one of or a combination of two or more moment, central moment, skewness, and kurtosis of pixel values as a predetermined feature as taught by <u>Flom</u> teaches to "provide[[s]] an identification technique based upon the recognition of the unique features of the iris and pupil, referred to herein as 'iris identification'." <u>Flom</u> at 1:46-48.

Allowable Subject Matter

[9]   Claims **1, 4-9** and **17-22** allowed.

Conclusion

[10]   Any inquiry concerning this communication or earlier communications from the examiner should be directed to DAVID P. RASHID whose telephone number is (571)270-1578 and fax number (571)270-2578. The examiner can normally be reached Monday - Friday 7:30 - 17:00 ET.

   If attempts to reach the examiner by telephone are unsuccessful, the examiner's
supervisor, Bhavesh Mehta can be reached on (571) 272-7453. The fax phone number for the
organization where this application or proceeding is assigned is 571-273-8300.

   Information regarding the status of an application may be obtained from the Patent
Application Information Retrieval (PAIR) system. Status information for published applications
may be obtained from either Private PAIR or Public PAIR. Status information for unpublished
applications is available through Private PAIR only. For more information about the PAIR
system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR
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like assistance from a USPTO Customer Service Representative or access to the automated
information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

                                      /David P. Rashid/
                                      Examiner, Art Unit 2624

/Bhavesh M Mehta/   David P Rashid
Supervisory Patent Examiner, Art Unit 2624   Examiner
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